

## **SER-UW Native Plant Nursery - Future Growth**

### **Target Production Goals**

Ferns are an iconic group of plants in the Pacific Northwest that fill an important ecological niche in many restoration projects, but that need a specialized, highly sterile environment when grown in a nursery setting. Our goal is to design and construct a unit based on a design used by Oxbow Native Plant Nursery that would allow us to grow a number of fern species in high demand for student projects.

A rhizome bed system will similarly allow us to provide species that are often requested for student projects with a minimal investment in infrastructure. These rhizomatous species are often ineffectively started from seed and require beds where they can grow and be divided and potted up on a yearly basis. Oxbow Native Plant Nursery has also used a rhizome bed production system for a number of years, and is providing technical support for this aspect of the project as well.

These production systems would also continue to move us toward greater financial sustainability. In terms of total sales percentages, Sword Fern (*Polystichum munitum*) has been our highest selling species, comprising 4.2% of total sales in the past 4 years, and Deer Fern (*Blechnum spicant*) is also one of our top 10 species sold. We are lacking sales information on rhizomatous plants, as we have not been able to grow or salvage these species, but interest in many of these species has been high. Species to be grown with both of these systems have been selected based on frequency of request in student projects, as well as those popular at public plant sales.

The rhizome production system will consist of five 4x6 ft (24 ft<sup>2</sup>) beds, each holding one species. Production numbers per square foot depend largely on the container size that each species will be harvested and planted into, as well as characteristics of rhizome growth. Estimated numbers below are based on containers that are used in rhizome production systems at Oxbow Native Plant Nursery, and which we plan to use as well. Container sizing will be standardized across all species, providing us with an equal starting point from which propagation practices can be improved upon as we continue to research the needs of individual species. D19 cones indicate the type and size of container to be used.

Due to their small size, a high number of fern spores are typically sown at one time, and the production per square foot can be difficult to quantify. During the early production phase for ferns, a very large number of germinants (1,000 - 2,000) can be grown in a small production space, making the produced plant material to square footage ratio quite high. This potential for high production numbers makes the small investment in space and infrastructure worthwhile, and the ultimate number of adult ferns that can be potted up is only limited by our bench space. Estimates are based on projected bench space available and demand for species.

<b>Fern Species</b>	<b>Sq. Footage</b>	<b>Estimated Plants Produced per Tray per Year</b>
Deer Fern ( <i>Blechnum spicant</i> )	1 ft <sup>2</sup> (12x12" tray)	200 plants (D19 cones)
Sword Fern ( <i>Polystichum munitum</i> )	1 ft <sup>2</sup> (12x12" tray)	360 plants (D19 cones)
Lady Fern ( <i>Athyrium filix-femina</i> )	1 ft <sup>2</sup> (12x12" tray)	200 plants (D19 cones)
Wood Fern ( <i>Dryopteris expansa</i> )	1 ft <sup>2</sup> (12x12" tray)	120 plants (D19 cones)
Western Brackenfern ( <i>Pteridium aquilinum</i> )	1 ft <sup>2</sup> (12x12" tray)	160 plants (D19 cones)

<b>Rhizomatous Species</b>	<b>Sq. Footage</b>	<b>Estimated Plants Produced per Bed per Year</b>
Redwood Sorrel ( <i>Oxalis oregana</i> )	24 ft <sup>2</sup> (4x6 ft bed)	442 plants (D19 cones)
Pacific Bleeding Heart ( <i>Dicentra formosa</i> )	24 ft <sup>2</sup> (4x6 ft bed)	420 plants (D19 cones)
False Lily of the Valley ( <i>Maianthemum dilatatum</i> )	24 ft <sup>2</sup> (4x6 ft bed)	500 plants (D19 cones)
Vanilla Leaf ( <i>Achlys triphylla</i> )	24 ft <sup>2</sup> (4x6 ft bed)	400 plants (D19 cones)
Wild Ginger ( <i>Asarum caudatum</i> )	24 ft <sup>2</sup> (4x6 ft bed)	442 plants (D19 cones)